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MARKET ANALYSIS OF
AUTOMATED BULK TERMINAL SYSTEMS

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MARKET ANALYSIS OF
AUTOMATED BULK TERMINAL SYSTEMS

Prepared For:
SUN INFORMATION SERVICES

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OCTOBER 1980

MARKET ANALYSIS OF AUTOMATED BULK TERMINAL SYSTEMS

ABSTRACT

This report analyzes opportunities for Sun Information Services to market its automated bulk terminals to the petroleum industry. Twenty-five users of automated terminals were surveyed in the course of the report. Opinions were solicited on the quality of various vendors, the importance of maintenance, the role of the data processing department and other pertinent topics. A forecast of the automated bulk terminal market is provided. Analyses and recommendations regarding Sun Informations' current and future market position are presented.

MARKET ANALYSIS OF AUTOMATED BULK TERMINAL SYSTEMS

TABLE OF CONTENTS

		<u>Page</u>
I	INTRODUCTION	1
	A. Objectives And Scope	1
	B. Methodology	2
II	EXECUTIVE SUMMARY	5
	A. Conclusions	5
	1. Market Conditions	5
	2. SIS Market Position	7
	B. Recommendations	7
III	THE ABT MARKET	11
	A. Market Structure	11
	B. Market Size	15
IV	USER ATTITUDES	23
	A. Justification Criteria	23
	B. Applications Requirements	23
	C. Financial Considerations	25
	1. Price Sensitivity	25
	2. Method Of Acquisition	26
	D. Selection Process	26
V	COMPETITIVE ENVIRONMENT	31
	A. Installed Base	31
	B. User Plans For New ABT Installations	34
	C. User Quality Ratings	37
	D. Maintenance	37
	APPENDIX: QUESTIONNAIRE	45

MARKET ANALYSIS OF AUTOMATED BULK TERMINAL SYSTEMS

LIST OF EXHIBITS

			<u>Page</u>
I	-1	Number Of Bulk Terminals Surveyed Compared With Total Installed Base	3
	-2	Users By Revenue Size And Number Of ABTs Installed	4
III	-1	Distribution Of Bulk Terminals By Type Of Oil Company	12
	-2	Number Of Bulk Terminals Installed By Major Oil Companies	13
	-3	Number Of Bulk Terminals Installed By Semi-Major Oil Companies	14
	-4	Average Number Of Terminals And ABTs By User Revenue Size	16
	-5	Expected Cost Of An ABT System With Full Features	17
	-6	INPUT's Current ABT Market Projection By Industry Type	18
	-7	Comparison Of INPUT's 1976 And Current ABT Market Projections	19
	-8	INPUT's 1976 ABT Market Projection By Company Type	20
	-9	INPUT's Estimate Of The ABT Market: Petroleum Companies Only	21
IV	-1	Users' Ratings Of ABT Applications	24
	-2	User Department Participation And Final Decision In Selecting An ABT Vendor	27
	-3	Users' Ratings Of ABT Characteristics	29
V	-1	Vendors Of ABTs Installed By Users	32
	-2	ABT Vendors Considered And Those Selected By Users	33
	-3	Users' Plans For New Installations	35
	-4	Users' Plans For Vendors' New ABTs	36
	-5	Users' Ratings Of Overall ABT Vendor Quality	38
	-6	Users' Ratings Of ABT Vendor Salespeople	39
	-7	Users' Ratings Of ABT Vendor Service Personnel	40
	-8	Usage Of Maintenance Contracts By Users With ABTs Installed	41
	-9	Users' Comments On Maintenance Contracts	43

I INTRODUCTION



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I INTRODUCTION

A. OBJECTIVES AND SCOPE

- The objectives of this study are to assist SIS in evaluating its Automated Bulk Terminal (ABT) program and to recommend an action program appropriate to the findings.
- This study is essentially a "second edition" of an earlier study by INPUT completed in September 1976.
- The study attempts to segment developments and quantify changes in the market that have occurred since 1976, and to forecast future market potential through 1986.
- The scope of the study was restricted to large terminals owned and operated by petroleum companies which deliver petroleum products to wholesalers or common carrier tank trucks. The study was further limited to the United States.

B. METHODOLOGY

- The results, conclusions and recommendations of this study are based primarily on data collected from a series of telephone interviews with system users, SIS's competitors and installers, and consultants.
 - Interviews were conducted with 23 petroleum companies.
 - Follow-on interviews were of limited value.
 - The interview questionnaire is given in Appendix A.
- In addition, literature and sales information was solicited from competitors.
- The "National Petroleum News" annual fact sheets for the years 1976 through 1980 provided some useful information.
- As shown in Exhibit I-1, the interview sample surveyed represents 21% of the total bulk terminal installed base. Although slightly less than the terminal population covered in the 1976 survey, the number of automated terminals covered in the current survey was nearly double.
- A breakdown of the population of ABTs covered in the study is given in Exhibit I-2.

EXHIBIT I-1

NUMBER OF BULK TERMINALS SURVEYED
COMPARED WITH TOTAL INSTALLED BASE

CATEGORY	1976 STUDY	1980 STUDY
TOTAL TERMINALS INSTALLED BY PETROLEUM COMPANIES	1,680	1,534
NUMBER SURVEYED BY INPUT	586	404
PERCENT OF TOTAL SURVEYED	31%	21%
PERCENT OF SURVEYED TERMINALS CURRENTLY AUTOMATED	22%	36%

EXHIBIT I-2

USERS BY REVENUE SIZE AND NUMBER OF ABTs INSTALLED

RESPON- DENT NUMBER	REVENUE SIZE (\$ MILLION)					NUMBER OF TERMINALS INSTALLED		
	<\$500	\$500-1,000	\$1,000-2,000	\$2,000-5,000	>\$5,000	BULK TERMINALS	1980 ABTs	1976 ABTs
1			X			12	3	3
2	X					9	1	0
3		X				11	11	11
4	X					2	1	1
5	X					1	1	1
6	X					4	0	0
7		X				6	0	0
8					X	50	50	50
9	X					8	0	0
10	X					5	0	0
11	X					3	1	0
12			X			22	0	1
13			X			4	1	0
14					X	32	2	0
15	X					11	0	N/A
16		X				10	2	0
17			X			15	8	N/A
18					X	30	5	25
19			X			15	14	12
20			X			12	1	N/A
21	X					3	3	N/A
22					X	39	39	5
23					X	100	5	1

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. CONCLUSIONS

I. MARKET CONDITIONS

- The current number of bulk terminals in the U.S. is about 2,000. No material change has taken place since the 1976 study.
- Eighty-five percent of target bulk terminals are owned by the largest 25 petroleum companies.
- The ABT market grew more slowly than expected in the 1976-1980 timeframe.
 - Numbers of new installations were fewer than expected.
 - Average price was greater than expected.
 - The total market in 1981 will thus be only 75% as large as the 1976 forecast.
- However, the ABT market is now expected to be larger in 1986 than previously forecast.
 - Large numbers of respondents plan installations within two years.

- The scope of systems is rapidly increasing.
- The total market in 1986 will be 130% as large as the 1976 forecast.
- Reasons given by users for installing ABT systems included:
 - Product safety through prevention of theft, shrinkage, credit fraud, allocations, etc.
 - Cost savings in 24-hour terminal operations.
 - Cash flow improvement through earlier invoicing.
 - Inventory management.
 - More closely integrated data management.
- Users were not price sensitive.
 - Cost was frequently mentioned, but remained a subjective and inaccurate impression, especially for installation and software charges.
 - IBM was often considered, though perceived as selling at a premium price.
- There is currently no dominant supplier.
- Currently available products were considered comparable by users. No manufacturer stood out.
- All manufacturers were viewed as providing less than adequate support.

2. SIS MARKET POSITION

- SIS is considered as often as any vendor, yet the percentage of those who actually buy is low. All prospective buyers speak directly with other users. INPUT found no hesitation or resistance among users to discussing their systems or prospective vendors. All showed normal bias toward their system and vendor. All vendors are seen as having comparable products and software.
- Larger petroleum companies have continued to pace the market. Most companies of consequence have had one or more experimental ABT installations and are now planning or designing larger integrated systems. SIS has a problem with low visibility in the data processing organization of large firms.
- Consultants are being used by smaller firms to select both equipment and software, and by larger firms for complete installations. SIS has a very low profile to these firms.
- INPUT found no important product or software problems affecting market penetration.
- INPUT found SIS, as well as ESI and GA, deficient in "support," especially as viewed by first-time users (who presumably need more hand-holding).
- Considering SIS's low penetration and the fact that its product is considered comparable to competing products, INPUT concludes that SIS has a marketing problem, not a market problem.

B. RECOMMENDATIONS

- INPUT recommends that SIS:

- Establish clearly and loudly that it is in the market and means to support this decision. Media advertising and direct communications to this effect would be desirable.
- Focus total marketing and general management attention on major buyers.
 - . Top-level Sun general management should contact their prospective user counterparts.
 - . Top-level sales personnel should focus on the selection committee.
 - . Monthly progress reports by type of market should be generated. Reports should call for help when needed and should forecast order placement and probabilities.
- Develop a support group responsible for defining systems and software requirements and modifications. This group should coordinate installation and system implementation and be responsible for monitoring the first month's operation.
- Add principal sales representatives that are experienced, mature, "systems" sales professionals. The field of systems sales to large users requires a specialized selling skill not easily acquired. Sales experience is more important than industry know-how or first-hand knowledge of ABTs.
- Begin a new public relations effort aimed specifically at smaller firms and consultants.
- Develop a strategy for international marketing of ABTs. Europe is a most likely intermediate-term market.

- SIS must recognize that the opportunity is now, particularly since the U.S. market for large ABTs will slow appreciably after 1980. A decision to move ahead with the recommended changes to marketing and sales policies requires immediate implementation and a high sense of urgency.

III THE ABT MARKET

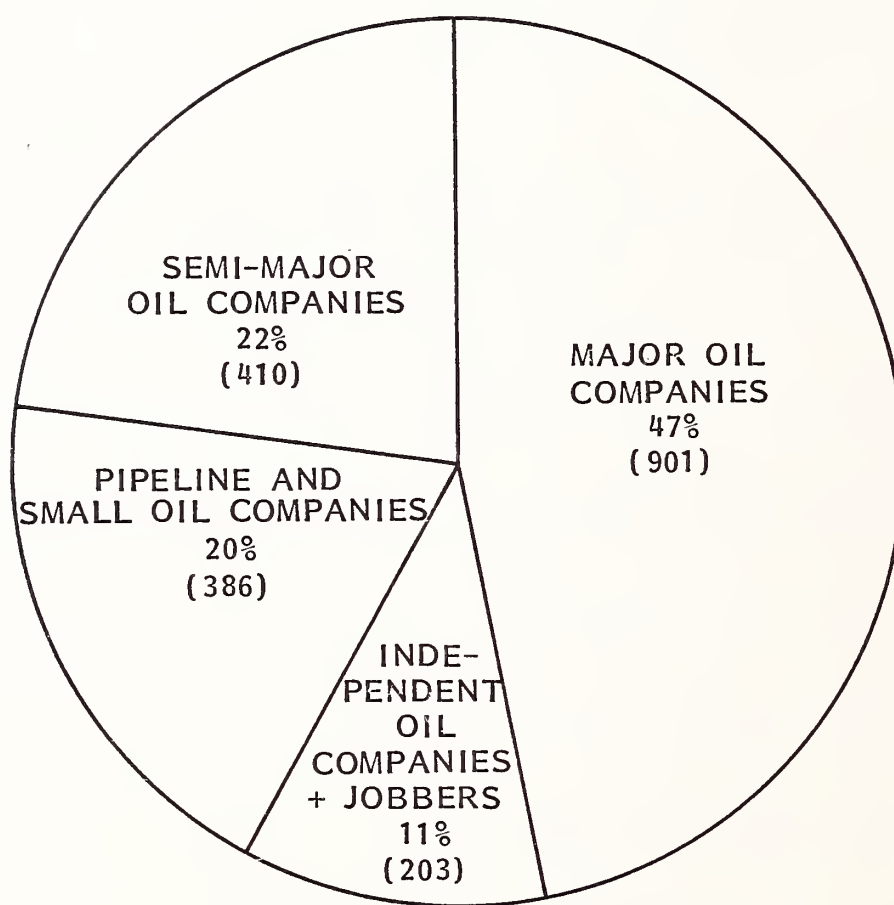
III THE ABT MARKET

A. MARKET STRUCTURE

- According to data provided by National Petroleum News, the top 21 petroleum companies account for 85% of the bulk terminal market in dollars and 69% in number of units.
- As shown in Exhibit III-1, the market can be divided into four categories:
 - Major oil companies.
 - Semi-major oil companies.
 - Pipeline and small oil companies.
 - Independents and jobbers.
- The first two categories account for 1,311 out of a total of 1,900 bulk terminals. The installed base by company is shown in Exhibits III-2 and III-3.

EXHIBIT III-1

DISTRIBUTION OF BULK TERMINALS BY
TYPE OF OIL COMPANY



(NUMBER OF COMPANIES)

(TOTAL NUMBER OF TERMINALS = 1,900)

*SOURCE: NATIONAL PETROLEUM NEWS

EXHIBIT III-2

NUMBER OF BULK TERMINALS INSTALLED
BY MAJOR OIL COMPANIES

MAJOR OIL COMPANIES	NUMBER OF TERMINALS
AMOCO OIL	122
ATLANTIC RICHFIELD CO.	61
CHEVRON USA INC.	141
EXXON CO. USA	84
GULF OIL CO. USA	150
MOBIL OIL CORP.	115
SHELL OIL CO.	127
TEXACO INC.	101
TOTAL	901

EXHIBIT III-3

NUMBER OF BULK TERMINALS INSTALLED BY
SEMI-MAJOR OIL COMPANIES

COMPANY	NUMBER OF TERMINALS
ASHLAND PETROLEUM CO.	56
CITIES SERVICE OIL CO.	33
CONOCO INC.	-
DIAMOND SHAMROCK CORP.	10
GETTY REFINING AND MARKETING CO.	18
KEN-McGEE REFINING CORP.	4
MARATHON OIL CO.	8
MURPHY OIL CORP.	26
PHILIPS PETROLEUM CO.	38
STANDARD OIL CO. (OHIO)	33
SUN COMPANY INC.	53
TENNECO OIL CO.	14
UNION OIL CO. OF CALIF.	117
TOTAL	410

- According to INPUT's sample for this study, the average number of U.S. bulk terminals per company ranged from approximately five for smaller organizations up to 50 for the major firms. ABTs ranged from an average of less than one per company for small firms to over 20 for the majors. These data and the percentage of terminals already automated are shown in Exhibit III-4.
- Since 1976, the average price of an ABT system has increased from \$50,000 to approximately \$70,000. A measure of current prices is given in Exhibit III-5, showing the range of prices currently quoted as reported by INPUT's interview sample.

B. MARKET SIZE

- INPUT's current forecast for ABTs is given in Exhibit III-6, which shows a 1981 market of \$22 million and a 1986 market of \$89 million.
 - Most importantly, the market growth rate next year is estimated at 73%. By 1986, as the market nears saturation, the average annual growth rate will drop to 32%.
- Exhibit III-7 compares this forecast to the 1976 study forecast (repeated in Exhibit III-8). The differences between the two forecasts, while not extraordinary at first glance, are greater than the dollar volume figures would indicate.
 - In fact, substantially fewer ABTs were installed in the 1977-1980 period than were forecasted earlier. However, the average price per system was higher than anticipated.
 - INPUT's estimate of the number of ABT systems installed by petroleum companies (the survey population) over the past several years is given in Exhibit III-9.

EXHIBIT III-4

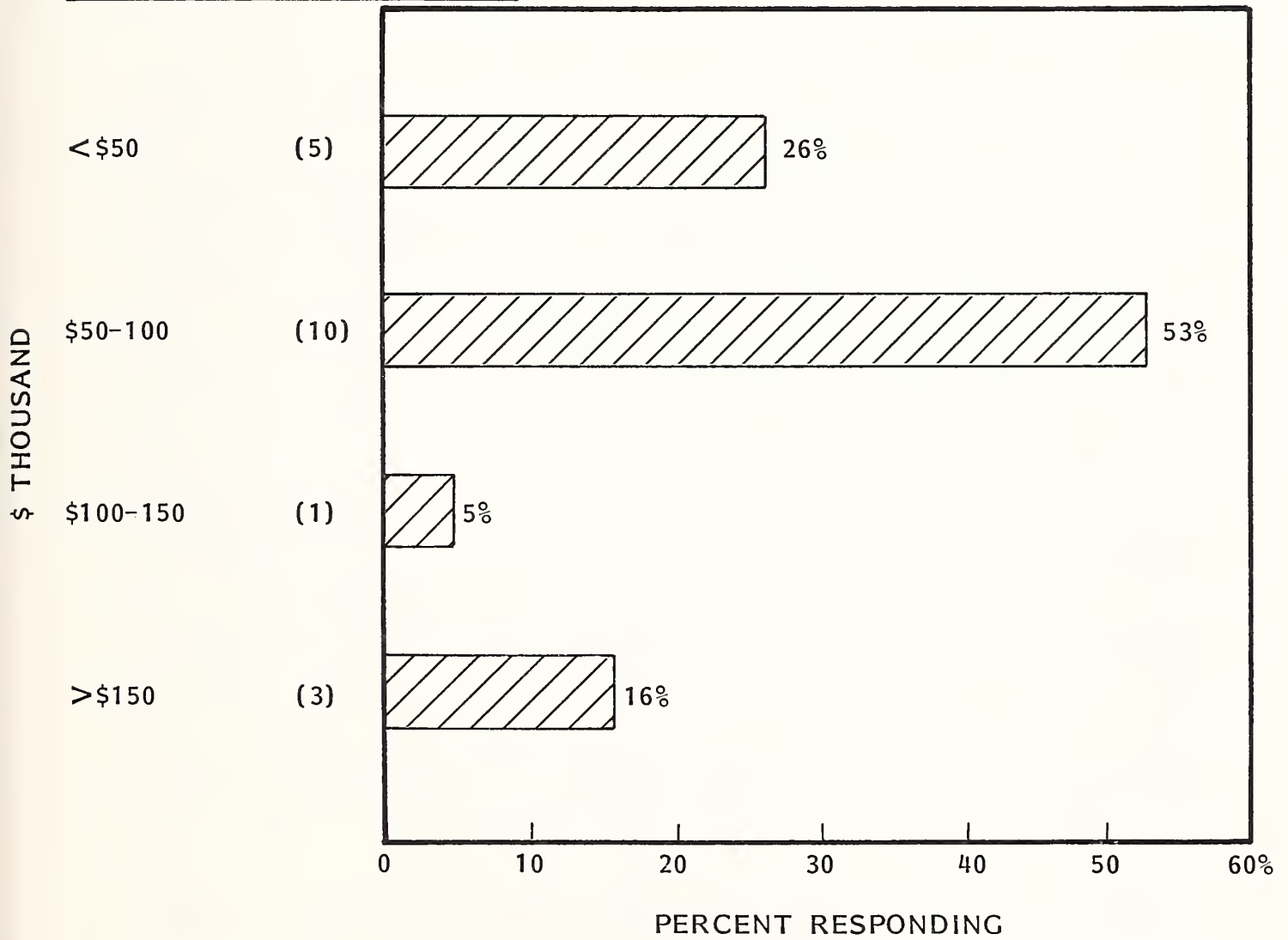
AVERAGE NUMBER OF TERMINALS AND ABTs
BY USER REVENUE SIZE

REVENUES (\$ MILLION)	NUMBER OF COMPANIES IN SURVEY	NUMBER OF BULK TERMINALS	AVERAGE NUMBER OF ABTs	PERCENT OF ALL TERMINALS AUTOMATED	PERCENT OF TERMINALS AUTOMATED IN AVERAGE COMPANY
<\$500	9	5.1	0.8	16%	33%
\$500-1,000	3	9.0	4.3	48	40
\$1,000-2,000	6	13.3	4.5	34	30
>\$3,000	5	50.2	20.2	40	46
OVERALL	23	17.6	6.4	36%	35%

EXHIBIT III-5

EXPECTED COST OF AN ABT SYSTEM
WITH FULL FEATURES

COST (NUMBER RESPONDING)



NUMBER OF RESPONSES = 19

EXHIBIT III-6

INPUT's CURRENT ABT MARKET PROJECTION
BY INDUSTRY TYPE

COMPANY TYPE	1981 (\$ MILLION)	1986 (\$ MILLION)
PETROLEUM	\$7.5	\$27.0
PIPELINE AND OTHER	7.5	27.0
TURNKEY INSTALLATION FEES	7.0	35.0
TOTAL	\$22.0	\$89.0
AVERAGE GROWTH RATE	73%	32%

EXHIBIT III-7

COMPARISON OF INPUT's 1976 AND CURRENT
ABT MARKET PROJECTIONS

ITEM	1981 (\$ MILLION)	1986 (\$ MILLION)
1976 PROJECTION	\$30	\$65
CURRENT PROJECTION	22	89
INCREASE (DECREASE) IN PROJECTION	(8)	24
PERCENT CHANGE	(27%)	37%

EXHIBIT III-8

INPUT's 1976 ABT MARKET PROJECTION
BY COMPANY TYPE

COMPANY TYPE	1976 (\$ MILLION)	1981 (\$ MILLION)	1986 (\$ MILLION)
PETROLEUM	\$0.3	\$10.0	\$20.0
PIPELINE AND OTHER	0.1	10.0	20.0
TURNKEY INSTALLA- TION FEES	1.0	10.0	25.0
TOTAL	\$1.4	\$30.0	\$65.0
AVERAGE GROWTH RATE	-	84%	17%

EXHIBIT III-9

INPUT's ESTIMATE OF THE ABT MARKET:
PETROLEUM COMPANIES ONLY

ITEM	1977	1978	1979	1980	1981
NUMBER OF ABT INSTALLATIONS	23	46	69	92	115
AVERAGE ABT PRICE (\$ THOUSAND)	\$ 50	\$ 55	\$ 60	\$ 65	\$ 65
ESTIMATED SALES	\$1,150	\$2,530	\$4,140	\$5,380	\$7,475

- Although the market is taking longer to develop than was forecast in the earlier study, INPUT still anticipates there will be about the same total number of installations by 1986.

IV USER ATTITUDES

IV USER ATTITUDES

A. JUSTIFICATION CRITERIA

- The purchase of an ABT system is justified in all cases by productivity improvement, namely manpower reduction.
- A secondary justification mentioned by several users was that on-site preparation of invoicing and bills of lading substantially improves cash flow. One respondent claimed that interest savings alone could have justified their system.
- Requirements for allocation and inventory management, however important, were not used by any of the respondents to justify an ABT system purchase.

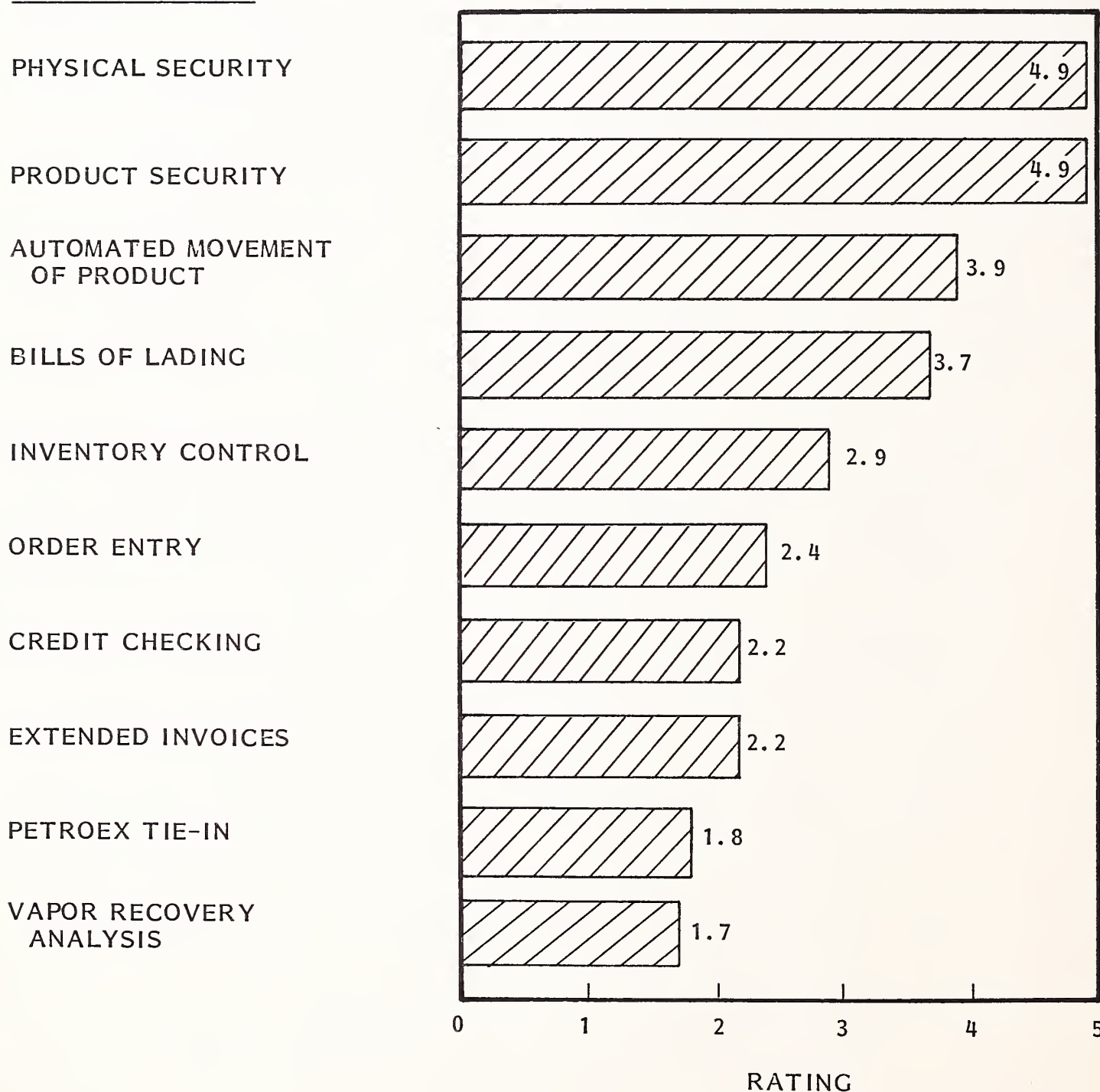
B. APPLICATIONS REQUIREMENTS

- Users were asked to rate the importance of various ABT system applications. The results are shown in Exhibit IV-1.
 - Physical and product security are the most important applications rated by respondents.

EXHIBIT IV-1

USERS' RATINGS OF ABT APPLICATIONS

CHARACTERISTIC



SCALE: 1 = LEAST IMPORTANT, 5 = MOST IMPORTANT

NUMBER OF RESPONSES = 21

- The interviews did not address the importance of computer network considerations. However, statements volunteered by users and follow-up conversations pointed out their increasing importance. Some of these considerations, which overshadowed characteristics that were specifically addressed, include:
 - Interest in centralized versus decentralized systems.
 - Desire to do customer accounting and allocations, product inventory and product delivery routing all at the terminal site.
 - Interest in having minor ABT satellite to a master ABT.
 - Concern over monitoring the system for security.
 - Interest in the collection of other types of accounting data.
- The desire for modular growth of systems continues to be important.
- Many users stressed the importance of software flexibility, implying that standard packages are currently designed too tightly. Users indicated that customizing programs was more costly than anticipated.

C. FINANCIAL CONSIDERATIONS

I. PRICE SENSITIVITY

- The 1976 study mentioned the overwhelming importance of pricing, especially in bidding situations.
- Most customers and prospects indicated that there is "little difference" between the products of ESI, GA, A.O. Smith and SIS.

- Most non-users and a number of current users had difficulty in estimating system prices. The range of estimates was unusually large. Almost no one was competent in estimating installation costs. No real evidence of pricing elasticity was present.
- The success of IBM's Series I shows that price levels can be significantly higher if additional benefits and features appear to be valuable in the eyes of the prospective user.
- A.O. Smith cited price as a contributing factor for leaving the U.S. market. Perhaps this indicates a more favorable offshore pricing level.
- INPUT believes that prices should be higher and marketing support correspondingly increased.

2. METHOD OF ACQUISITION

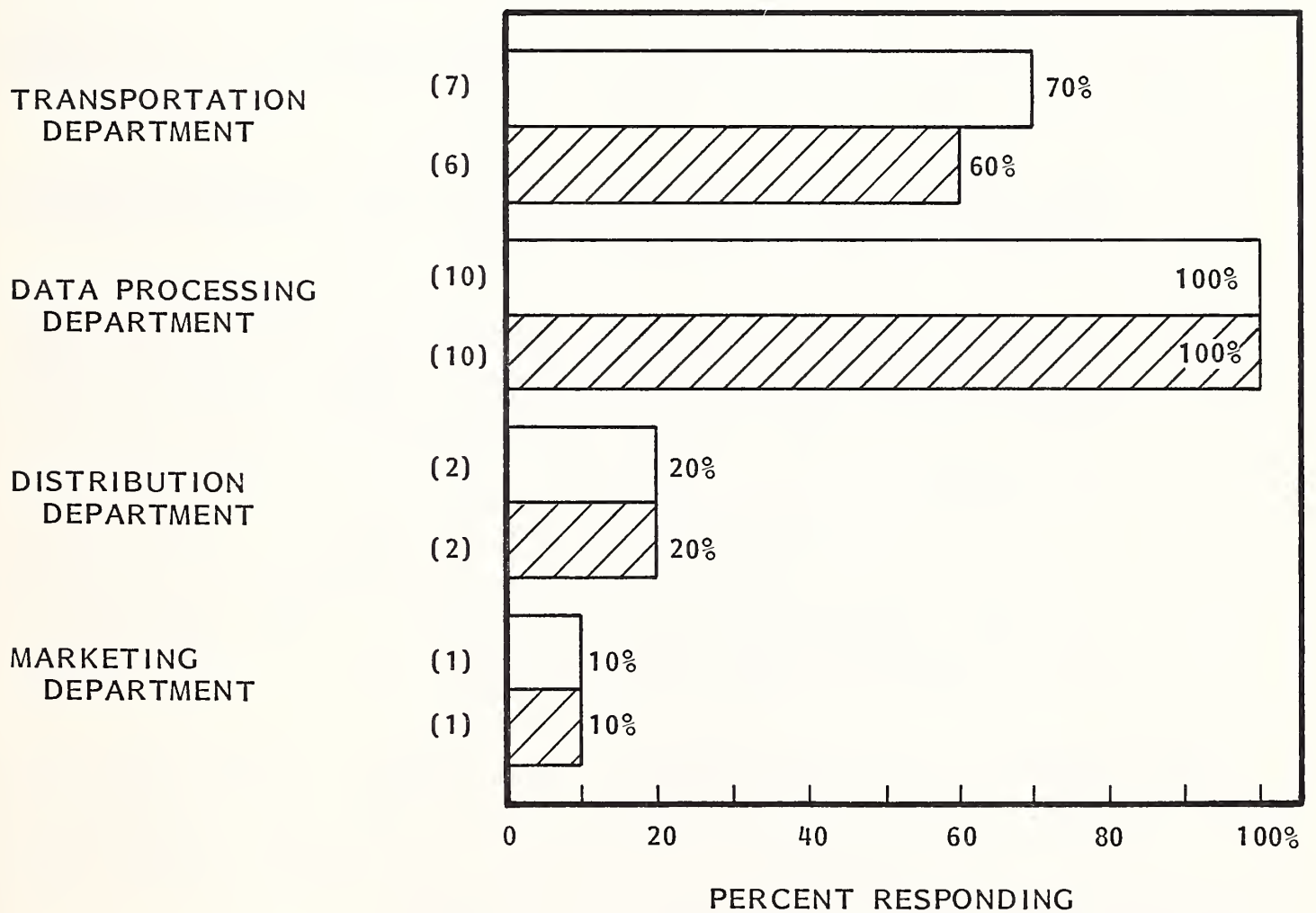
- All systems were acquired by outright purchase - no leases, installment sales, etc., were used.
- Several respondents volunteered that the vapor recycling requirements imposed by the EPA have created an opportunity to install ABTs both for less cash and with fewer approval problems than during normal times. INPUT was unable to get more definitive information on this.

D. SELECTION PROCESS

- Exhibit IV-2 shows the user departments involved in the selection of ABT systems as reported by respondents.

EXHIBIT IV-2

USER DEPARTMENT PARTICIPATION AND FINAL DECISION IN SELECTING AN ABT VENDOR



- ☐ INVOLVED IN VENDOR ANALYSIS
- ☒ INVOLVED IN PURCHASE DECISION

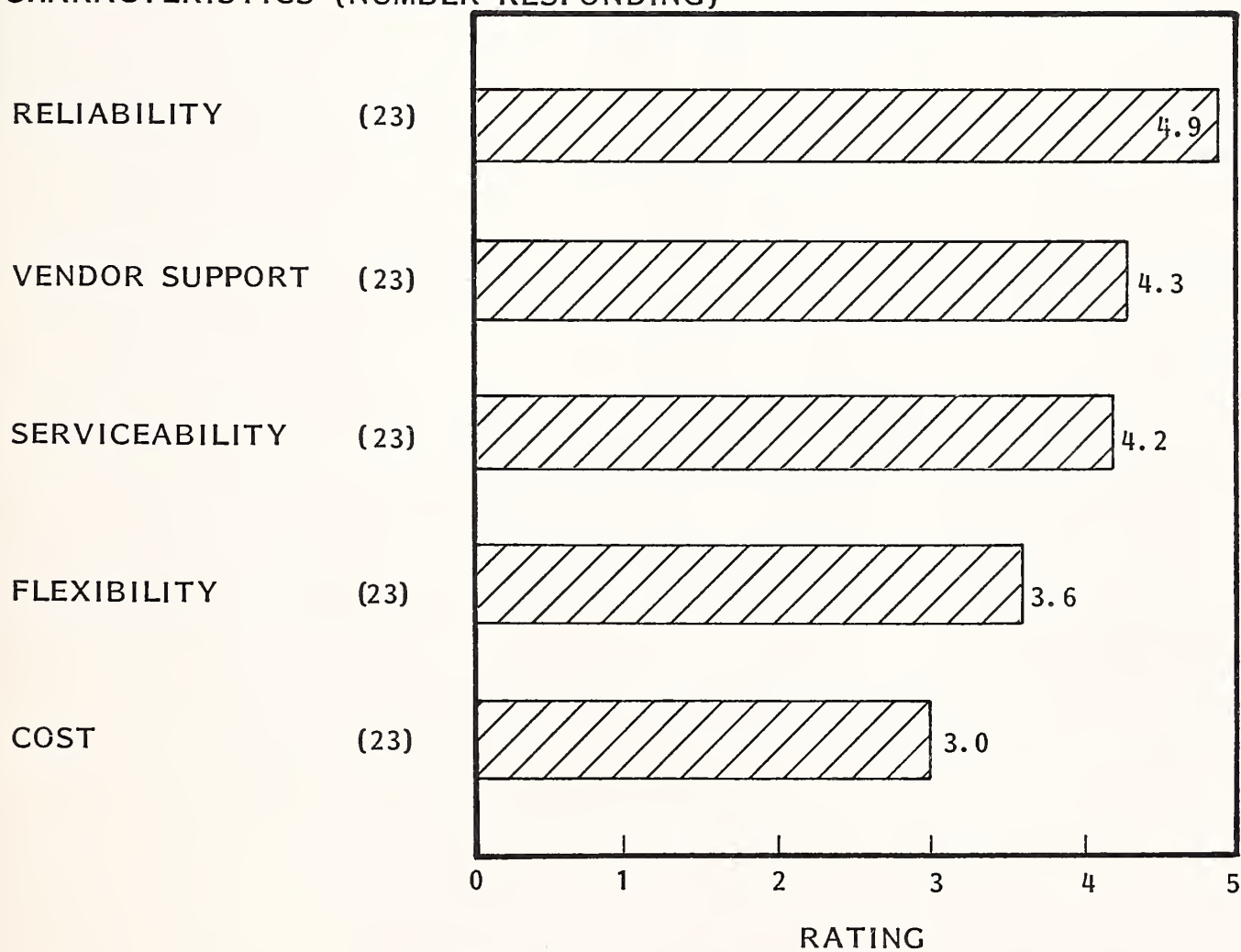
NUMBER OF RESPONSES = 10

- Although only half the interview sample responded to this question, it is clear that both the data processing and transportation departments are vital to the selection process.
- Users were asked to rate the importance of system characteristics when evaluating a system for procurement. All users responded to this question. The results, shown in Exhibit IV-3, rate:
 - Reliability as the single most important factor.
 - Cost as the least important factor (which buttresses the price elasticity findings reported earlier.)
- Most users reflected the opinion that all available ABT equipment does the job with little difference among competitors.
- A number of comments were received about defective badge readers, easily duplicated cards, lack of software flexibility and general inflexibility of the system. Most of these criticisms seemed on follow-up to reflect uninformed judgements.
- A survey such as this reflects users' subjective impressions, not demonstrable differences among products. It is not practical to make suggestions for product improvement based on this information.
- Modification or customization of software packages may be an area worth fresh attention. What is considered standard and how much free customizing is included appears to be confusing to users and prospects, especially small ones using consultants.

EXHIBIT IV-3

USERS' RATINGS OF ABT CHARACTERISTICS

CHARACTERISTICS (NUMBER RESPONDING)



SCALE: 1 = LEAST IMPORTANT, 5 = MOST IMPORTANT

NUMBER OF RESPONSES = 23

V COMPETITIVE ENVIRONMENT

V COMPETITIVE ENVIRONMENT

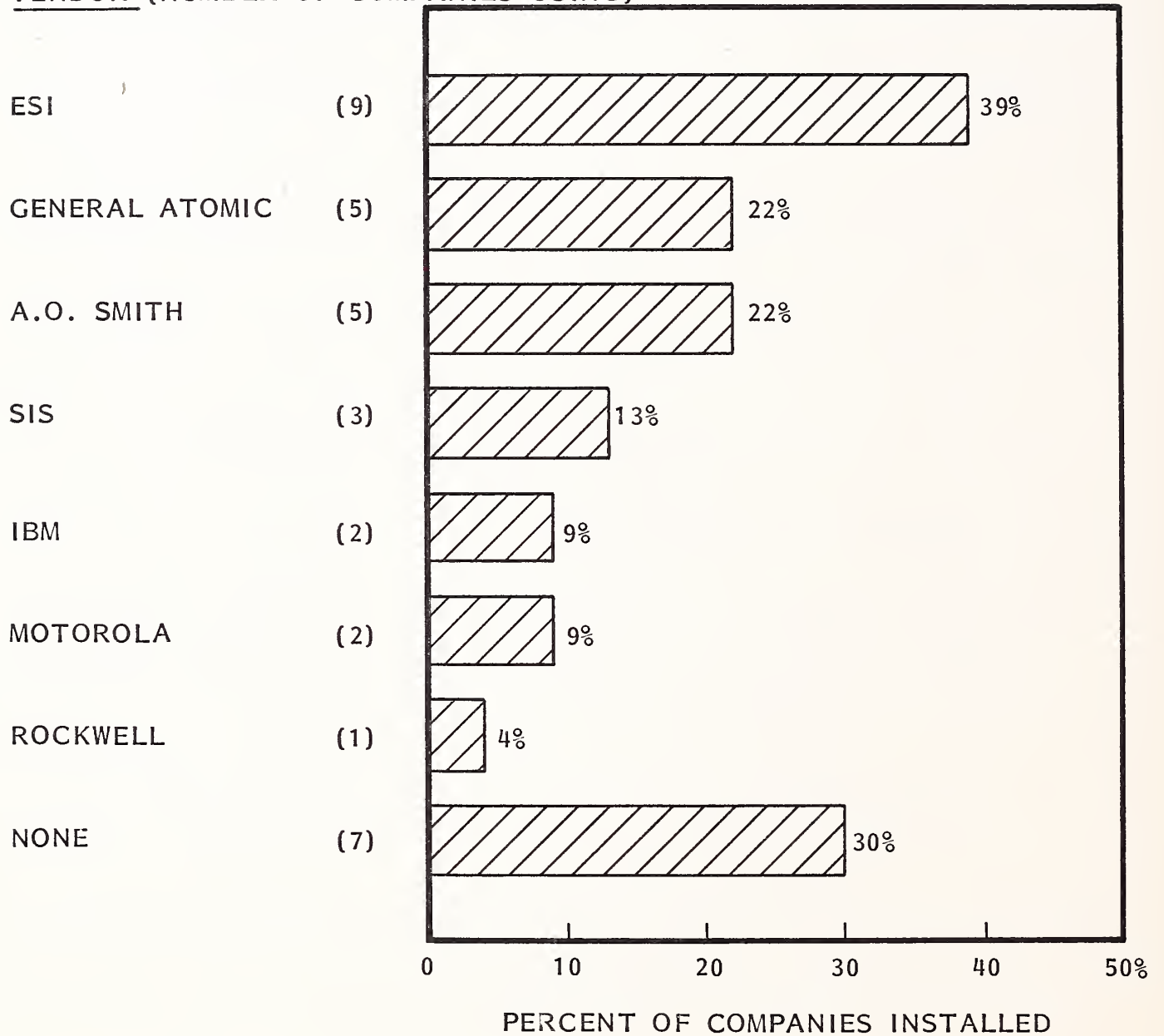
A. INSTALLED BASE

- For the 23 companies interviewed, the distribution of presently installed ABT systems by vendor is given in Exhibit V-1.
 - ESI is the leader with 39%.
 - General Atomic and A.O. Smith place second with 22% each.
 - SIS is fourth with 13%.
- Exhibit V-2 shows the ABT vendors considered by respondents and those ultimately selected. Again, ESI leads with a 61% mention of those considered. SIS was considered by 52% but selected by only 13%.
 - The difference in the number of evaluations is not considered material. ESI and SIS appear to be covering the territory equally well.
- Clearly, ESI's close ratio is considerably higher than SIS's (3:1 in our sample). The reasons given for selecting ESI were:
 - Good ABT track record.

EXHIBIT V-1

VENDORS OF ABTs INSTALLED BY USERS

VENDOR (NUMBER OF COMPANIES USING)



NUMBER OF COMPANIES = 23

EXHIBIT V-2

ABT VENDORS CONSIDERED AND THOSE SELECTED BY USERS

RESPON- DENT NUMBER	ESI	GENERAL ATOMIC	A.O. SMITH	SIS	IBM	MOTOROLA	ROCKWELL	NONE
1	*	*	•	•				*
2	*	•						
3								
4	*							
5	*		•					*
6			•	•	•			*
7	•		•	•				*
8	•	*	*	•	•	*		*
9								*
10	•		•	•	*			*
11								
12								
13	*	•	•		•			
14	•	*		•				*
15								
16							*	
17		*	*	•	•			
18	•	•		*	•			
19	*		*	*	•	*		
20		•		*	•			
21	*							
22	*	*	*	•	*			
23	*	*		•				
TOTAL •	61%	44%	44%	52%	39%	9%	4%	N/A
TOTAL *	39%	26%	17%	13%	9%	9%	4%	26%

• = INVESTIGATED BY USER

* = SELECTED BY USER

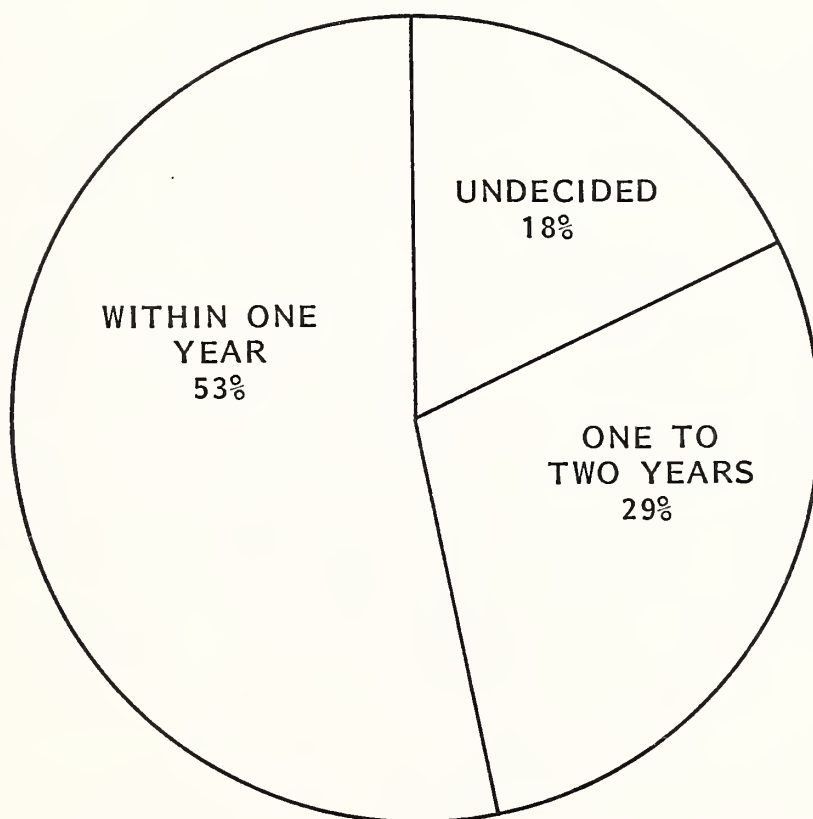
- Good service record.
- Price.
- Similar reasons were given by other users for selecting vendors other than ESI.
- Two points mentioned by users were thought to be significant for SIS:
 - Lack of confidence in SIS's commitment to stay in the market.
 - SIS not well established on the West Coast.

B. USER PLANS FOR NEW ABT INSTALLATIONS

- Users were asked to describe their plans for installing new ABT systems over the next two years.
 - Of the 23 respondents, 17 planned to acquire new systems, nine within the next 12 months, as shown in Exhibit V-3.
 - Many companies stated they had already decided on a vendor. The distribution of vendor mentions is given in Exhibit V-4.
- The sample stated plans to install 57 systems within the next two years. General Atomic was the leading mention, with 26 systems.
- Forty-six percent of the sample had not decided on a vendor. Although this 46% represented only 15 systems, the chances are good that, once decisions have been made, the number of systems installed by this group will be much higher than stated.

EXHIBIT V-3

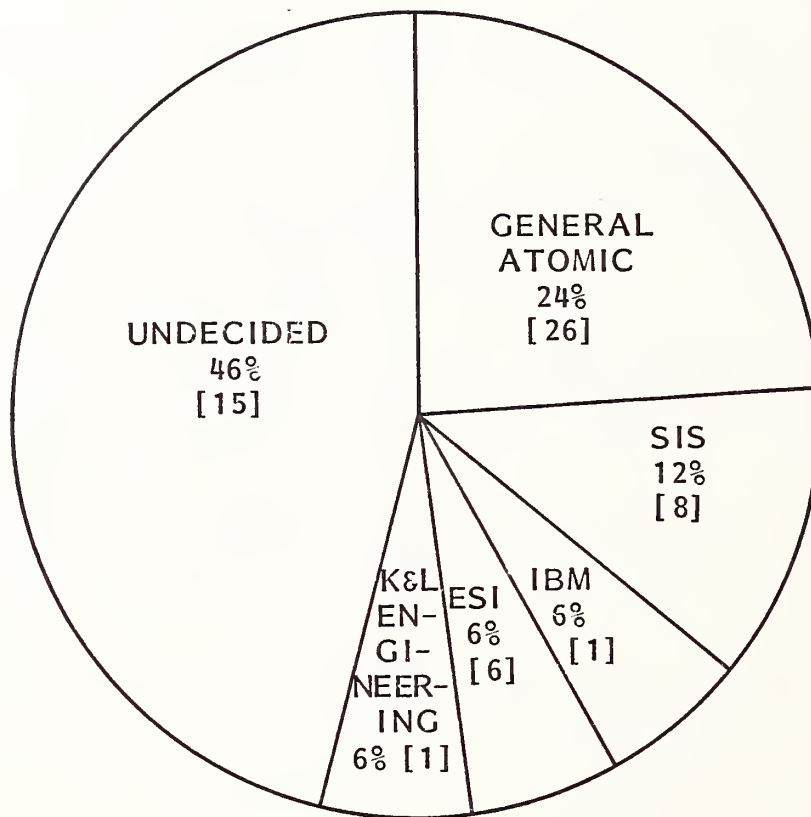
USERS' PLANS FOR NEW INSTALLATIONS



NUMBER OF COMPANIES PLANNING NEW ABTs = 17

EXHIBIT V-4

USERS' PLANS FOR VENDORS' NEW ABTs



[NUMBER OF SYSTEMS]

NUMBER OF COMPANIES PLANNING NEW ABT = 17

AVERAGE NUMBER OF NEW SYSTEMS PER USER = 3.4

C. USER QUALITY RATINGS

- Users were asked to rate vendors on three parameters: overall quality, as shown in Exhibit V-5; sales personnel, as shown in Exhibit V-6, and service personnel, as shown in Exhibit V-7.
 - These exhibits need to be read carefully because of the low number of responses in some categories. For example, IBM is rated highest overall on the chart based on a sample of one.
- Although the findings on these charts are certainly not conclusive, INPUT senses that both ESI and General Atomic, the chief competitors, would rank higher than SIS from both sales and support standpoints.
- Perhaps significant is the fact that data processing personnel were not specifically interviewed in the study. We postulate that among DP professionals, IBM would receive a favorable mention in a majority of cases. IBM's success in the marketplace will bear heavily on the influence of DP personnel in the selection process.

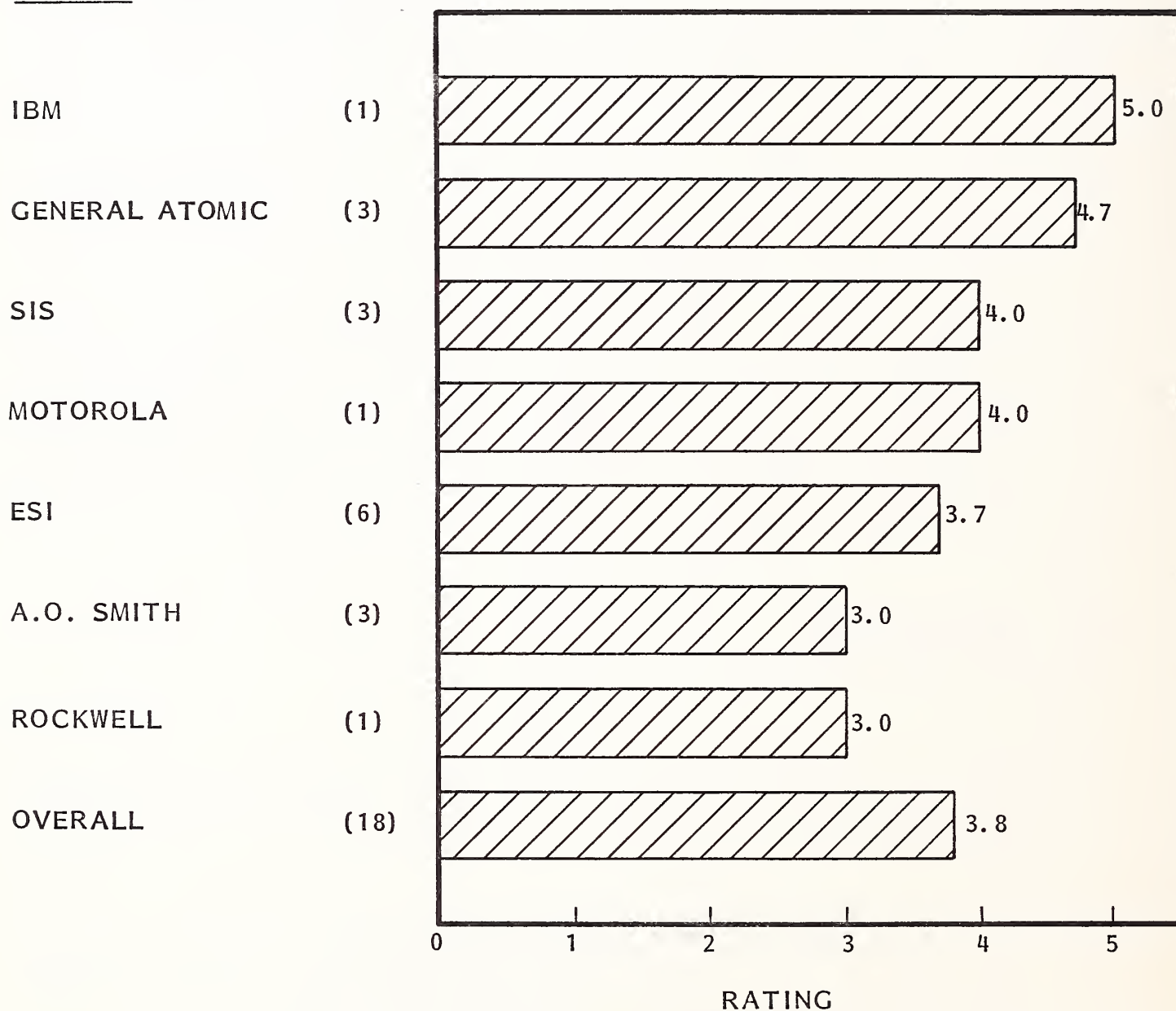
D. MAINTENANCE

- Although the ratings do not reflect poor service, INPUT's impression (from discussion with interviewees) was that the average quality of service from all ABT vendors was relatively low.
- As shown in Exhibit V-8, vendor maintenance contracts are held only by approximately half of the users with ABTs installed. This is a very low ratio compared with that found for most other types of DP systems.

EXHIBIT V-5

USERS' RATINGS OF OVERALL ABT VENDOR QUALITY

VENDOR (NUMBER OF RESPONSES)



SCALE: 1 = LOWEST RATING, 5 = HIGHEST RATING

NUMBER OF RESPONDENTS = 15

EXHIBIT V-6

USERS' RATINGS OF ABT VENDOR SALESPEOPLE

CHARACTERISTIC (NUMBER OF RESPONSES)	GENERAL ATOMIC (5)	ESI (5)	A.O. SMITH (1)	SIS (3)	IBM (1)
KNOWLEDGE OF INDUSTRY	5.0	3.6	2.0	4.0	5.0
KNOWLEDGE OF PRODUCT	4.8	4.5	2.0	3.3	5.0
INSTALLATION ASSISTANCE	4.5	3.6	4.0	2.3	5.0
FOLLOW-UP	4.3	2.8	3.0	2.3	5.0
OVERALL	4.7	3.5	2.8	3.0	5.0

SCALE: 1 = LOWEST RATING, 5 = HIGHEST RATING

NUMBER OF RESPONSES = 15

EXHIBIT V-7

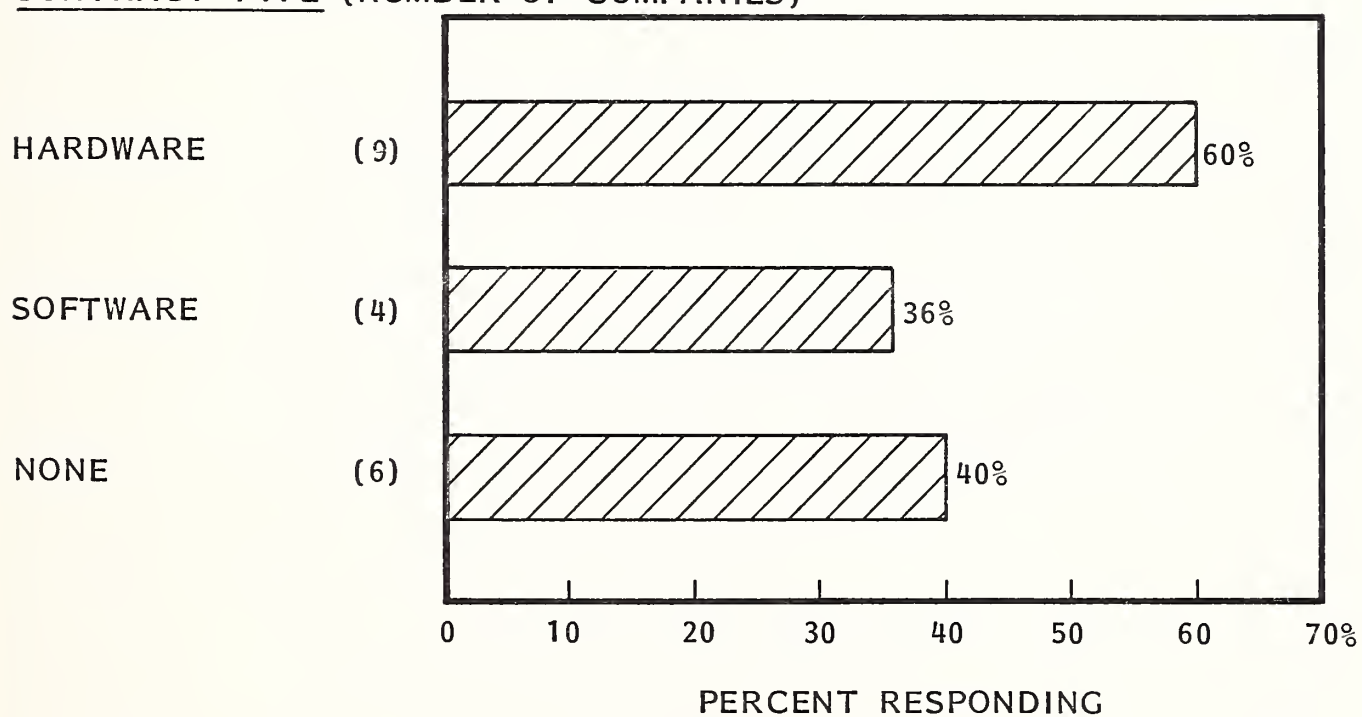
USERS' RATINGS OF ABT VENDOR SERVICE PERSONNEL

CHARACTERISTIC (NUMBER OF RESPONSES)	GENERAL ATOMIC (4)	ESI (6)	A.O. SMITH (1)	SIS (2)	IBM (1)
RESPONSE TIME	4.5	3.0	5.0	4.0	4.0
PRODUCT KNOWLEDGE AND TRAINING	5.0	3.8	5.0	3.5	4.0
ATTITUDE	4.8	4.0	5.0	4.0	4.0
OVERALL	4.8	3.6	5.0	3.8	4.0

SCALE: 1 = LOWEST RATING, 5 = HIGHEST RATING

NUMBER OF RESPONSES = 14

EXHIBIT V-8

USAGE OF MAINTENANCE CONTRACTS BY
USERS WITH ABTs INSTALLEDCONTRACT TYPE (NUMBER OF COMPANIES)

NUMBER OF RESPONSES = 15

- Users' comments on maintenance contracts, both pro and con, are summarized in Exhibit V-9.

EXHIBIT V-9

USERS' COMMENTS ON MAINTENANCE CONTRACTS

- Opposed to maintenance contracts
 - "Vendor never informed user."
 - "Field service office too far away."
 - "Cost too high."
 - "Downtime of system not great enough."
 - "Maintenance contracts do not ensure reliability."
 - "Vendors not reliable enough."
 - "Training own personnel for self-maintenance."
 - "Prefer to maintain system by company's engineering group."
- In favor of maintenance contracts
 - "Pays to avoid costly downtime."
 - "Local field service."
 - "Good response was ensured."
 - "Cost was right."
 - "Less downtime experienced."

APPENDIX: QUESTIONNAIRE

AUTOMATED BULK TERMINAL (ABT) SYSTEMS

1. How many bulk terminals does your company own and operate that deliver liquid petroleum products to trucks?

Number: _____

or Range: _____

2. What kind of products do you handle?

_____ Gasoline

_____ Diesel Fuel

_____ Other _____

3. Are any of your terminals automated?

Yes _____ No _____

(If NO, skip to Section II, page 8)

- a. If yes, how many?

Number _____ or percentage _____%

- b. When were they installed?

SECTION I

4. Who is the vendor of your automation system(s)?

Name(s) : _____

- a. On what basis did you select that particular vendor/system?
(i.e., use justification and selection procedures)

- b. What other vendors did you evaluate?

_____ IBM

_____ A.O. Smith

_____ Other _____

_____ Other _____

_____ Other _____

_____ None

4. c. Comments on vendors:

5. How important were the following items to you in choosing a vendor/system? Please rank on a scale of 1-5, where 1 = not important and 5 = most important.

- a. _____ Reliability
- b. _____ Cost
- c. _____ Flexibility
- d. _____ Serviceability
- e. _____ Vendor Support
- f. _____ Other _____
-

6. On a scale of 1-5, how important were each of these features to you? (1= not important, 5 = most important)

- a. _____ Physical security of the terminal
- b. _____ Security of product
- c. _____ Automated movement of product
- d. _____ Credit checking
- e. _____ Order entry
- f. _____ Bills of lading
- g. _____ Extended invoices
- h. _____ Inventory control
- i. _____ Vapor recovery analysis
- j. _____ PETROEX tie in

7. If there were a system which provided all of the above features, how much would you expect it to cost?

\$ _____

8. Can your present equipment be purchased from someone other than the manufacturer?

Yes _____ No _____

Describe: _____

9. Do you have any future plans for automated terminal installation?

Yes _____ No _____

If yes:

a. Vendor _____

b. Number _____ or _____ %

c. Planned installation dates: _____

10. Please rate your satisfaction with your present automated systems (on a scale of 1-5, 1= not satisfied, 5 = very satisfied).

Vendor

Rating

11. What features of your system do you like best?

12. What features of your system would you like to see improved or changed?

13. Pricing:

a. What is the price of your current system(s)?

\$ _____

b. How is the system financed?

_____ Lease

_____ Purchase

_____ Other (describe) _____

c. Do you pay monthly maintenance on your system?

Yes _____ No _____

If yes,

_____ Hardware maintenance \$ _____/month

_____ Software maintenance \$ _____/month

_____ Other \$ _____/month

13. c. If no, would you be interested in a maintenance contract for:

Hardware Yes ____ No ____ \$ ____/month

Software Yes ____ No ____ \$ ____/month

Other? Yes ____ No ____ \$ ____/month

- d. What time and materials rate are you charged?

14. What types of computers can be hooked-up to your terminal automation system?

15. How is your bulk terminal tied into your automated system?

Describe: _____

16. a. Please rate from 1-5 your satisfaction with the terminal vendor's salesmen in the areas of: (1 = Not satisfied, 5 = very satisfied)

1. Knowledge of industry	_____
2. Knowledge of product	_____
3. Assistance in installation	_____
4. Follow-up	_____
5. Other _____	_____
_____	_____

- b. Please rate on a scale of 1-5 your satisfaction with the vendor's service personnel in the areas of:

1. Response time	_____
2. Product knowledge and training	_____
3. Attitude	_____
4. Other _____	_____
_____	_____

17. Do you have any advice for vendors of bulk terminal automation systems?

SECTION II

4. Are you currently considering the acquisition of any automated terminal equipment?

Yes _____ No _____

5. Where do you/would you go to get information on what is available in the way of bulk terminal automation?

6. a. Have you evaluated any of the vendors?

Yes _____ No _____

- b. If yes, which ones?

_____ IBM

_____ A.O. Smith

_____ Other _____

_____ Other _____

- c. Comments on vendors:

7. How many terminals would you automate?

Number _____ or Percentage _____%

8. When would you plan to install the systems?

9. Can you buy equipment from someone other than the vendor?

Yes _____ No _____

Describe: _____

10. How important would the following items be to you in choosing a vendor/system? Please rank on a scale of 1-5, where 1 = not important and 5 = most important.

a. _____ Reliability

b. _____ Cost

c. _____ Flexibility

d. _____ Serviceability

e. _____ Vendor Support

f. _____ Other _____

_____ Other _____

11. On a scale of 1-5, where 1 = not important, and 5 = most important, how important would each of these features be to you?

- a. _____ Physical security of the terminal
- b. _____ Security of product
- c. _____ Automated movement of product
- d. _____ Credit checking
- e. _____ Order entry
- f. _____ Bills of lading
- g. _____ Extended invoices
- h. _____ Inventory control
- i. _____ Vapor recovery analysis
- j. _____ PETROEX tie in

12. If there were a system which provided all of the above features, how much would you expect it to cost?

\$ _____

13. If you purchased a system would you be interested in a maintenance contract for:

- a. Hardware _____ Yes _____ No \$ _____/month
- b. Software _____ Yes _____ No \$ _____/month
- c. Other _____

if no, why not?

14. What types of computers can be hooked-up to a terminal automation system?

15. How is your bulk terminal tied into your computer system?

Describe:

16. a. Please rate from 1-5 your satisfaction with the terminal vendor's salesmen in the areas of:

1. Knowledge of industry	<hr/>
2. Knowledge of product	<hr/>
3. Assistance in installation	<hr/>
4. Follow-up	<hr/>
5. Other <hr/>	<hr/>
<hr/>	<hr/>

- b. Please rate your satisfaction with the vendor's service people in the areas of:

1. Response time	<hr/>
2. Product knowledge and training	<hr/>
3. Attitude	<hr/>
4. Other <hr/>	<hr/>
<hr/>	<hr/>

17. Do you have any advice you would like to offer to vendors of bulk terminal automation systems?

